

## SWITCHED NOISE FILTER CIRCUIT FOR A DC-DC CONVERTER

ABSTRACT OF THE DISCLOSURE

A switched noise filter circuit for DC-DC converters which use the instantaneous output voltage to establish the converter's duty ratio. The converter cycles the switching element on and off for time intervals  $T_{on}$  and  $T_{off}$ , respectively. A switching control circuit includes a filter capacitance connected between the feedback node and ground, and a comparator which compares a feedback voltage  $V_{fb}$  with a fixed voltage  $V_{ref}$ ; at least one of  $T_{on}$  and  $T_{off}$  is a "modulated" interval which is terminated when  $V_{fb}$  crosses  $V_{ref}$  due to the discharge of the filter capacitance. A switched noise filter circuit applies an offset voltage to  $V_{fb}$  during at least one of  $T_{on}$  and  $T_{off}$ , with the offset voltage disconnected from  $V_{fb}$  by the beginning of the modulated interval or shortly thereafter. When the offset voltage is properly applied, the effect of extraneous electromagnetic noise coupled into  $V_{fb}$  is reduced.